

ADDRESS to parents, on the present  
state of vaccination. By a  
Candid Observer.

London, 1822.

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*From the author*

1822

*& Guy*

AN

ADDRESS TO PARENTS,

ON

VACCINATION.



LONDON:  
Printed by A. & R. Spottiswoode,  
New-Street-Square.

AN  
ADDRESS TO PARENTS,  
...  
ON THE  
PRESENT STATE  
OF  
VACCINATION  
*IN THIS COUNTRY;*

WITH AN IMPARTIAL ESTIMATE OF THE PROTECTION  
WHICH IT IS CALCULATED TO AFFORD AGAINST  
THE SMALL-POX.

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BY A CANDID OBSERVER.

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LONDON:  
PRINTED FOR  
LONGMAN, HURST, REES, ORME, AND BROWN,  
PATERNOSTER-ROW.  
1822.



## ADDRESS TO PARENTS.

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TWENTY-FOUR years have now elapsed since the discovery of the cow-pox by Dr. Jenner ; and twenty, since the practice of vaccination was adopted, to the almost total exclusion of small-pox inoculation. We shall not be far wrong, probably, in conjecturing, that one-half of the inhabitants of this country trust to it as their security against the most dreadful disease which has ever been permitted to afflict the human race ; a disease, the uncontrolled ravages of which it is painful, even at this distance of time, to contemplate ; a disease which, in point of malignity, equals, if it does not actually exceed, the plague itself. The interest, therefore, which every individual in this kingdom has in vaccination, either on his own account, or on account of his

family and friends, is unquestionably of the deepest kind ; and it cannot be a matter of surprize, that every thing connected with vaccination should excite, and that in no ordinary degree, the attention of the public.

Vaccination was introduced as a preservative against the small-pox. If the origin, and early history, and subsequent diffusion of vaccination over the whole world, are points which could attract curiosity, how much more natural was it that the attention of the public should be roused, when they learned, not merely by vague rumours, but by the unequivocal admission of medical men, the most conversant with the subject, that small-pox had succeeded vaccination in some instances, and that such occurrences were even not very uncommon ? A very general feeling seems to prevail too, that these cases of small-pox after vaccination are becoming yearly more and more frequent. Many families have had occasion to see them, and there are probably few, either in town or country, who have not heard of an instance among their neighbours or friends.

It is very natural for vaccinated persons, and the parents of vaccinated persons, and we may now add, for the wives and families of vaccinated persons, to feel interested in all this; to enquire with some anxiety, whether these things were anticipated by the faculty,—whether they have made any alteration in their views regarding vaccination,—whether, in short, they still continue to recommend it with the same earnestness, and the same firm conviction of its advantages, as they did ten, fifteen, or twenty years ago. We think the world may very well be excused for putting these questions to the doctors; nay, we are disposed to think they might even go a little deeper in their questions, and still remain thoroughly sensible of the justness of the old adage about the cobler and his last.

Placing, as we hope the public do, and as we are sure they may, the most implicit reliance upon their medical attendants, still, considering the deep stake they have in the game, we can pardon them for wishing to know, whether the faculty are

agreed about the causes of small-pox,—whether, in reality, cases of small-pox after cow-pox are become more frequent than formerly ; and, if so, to what it is to be attributed ;—whether there is any reasonable probability of its increasing, and what is the present ratio of those who are effectually secured, to those who undergo the small-pox in after life ;—whether there are any means of increasing the security which one vaccination may have given ;—whether the occurrence of small-pox after vaccination is as frequent in other countries as it is in this ; and, if not, to what is the difference to be ascribed ? None of these are, we think, very unreasonable questions ; at any rate, we can anticipate no possible objections to an inquiry, what sort of a disease it is, which a certain number of those who are vaccinated must lay their account with undergoing, and whether it ever proves fatal, and if it does, in what proportion is the mortality to that of the *natural* or *inoculated* small-pox.

These are the questions which it is proposed to discuss in the following pages, and, as nearly as may be, in the order in which

they are here set down. The object of the author is to make the subject intelligible to all classes of persons ; and he will, therefore, avoid as much as possible, the employment of technical terms, albeit fully aware, that in the present temper of the times, he might hazard more, with a fair chance of being perfectly well understood by a large majority of his readers. It may be said that in doing this he is travelling out of his sphere, and usurping the privileges of the faculty ; but, independent of the grounds already stated,—the general interest of the question,—it may be argued, in reply, that even on their own shewing, such an investigation of the subject by an impartial observer, cannot reasonably be objected to by professional men. They often complain of the obstructions thrown in the way of a general extension of vaccination by the obstinacy and prejudices of the people. How can it be otherwise, if the people are uninstructed ? — if they are not taught to draw proper conclusions from those facts which, as it is allowed, are so frequently before their eyes ? We are far from wishing, or intending, to take the subject out of the hands of

the faculty, with whom we have already expressed our firm persuasion that it may be safely trusted ; but we enter upon it under the belief that we shall be co-operating with them, and the *hope* that we may be laying a foundation, upon which they will not refuse to build.

Nothing has given the author more pleasure, and nothing, he is sure, can inspire the public with more confidence, than seeing and knowing, that the medical profession have kept a watchful eye over the progress of vaccination in this country. The reliance which was placed on the attainments and honorable character of the members of the medical profession, contributed, in a most essential degree, to the general introduction of vaccination. It required but little discernment to perceive, that medical men, in their early, vigorous, and benevolent recommendations of vaccination, must have been guided in a great measure by speculative reasoning. Their *experience* of its efficacy, as a preventive of small-pox, was necessarily bounded by very narrow limits ; and though no analogical argument could lead them to believe, that its influence

would cease in the course of years, yet still such an event must have been allowed to be within the verge of possibility. They took up the cause of vaccination with a degree of warmth and unanimity, which must ever reflect the highest honor upon them. The opposers of it were few in number, and those few of no character whatever in the world. When we look back to the period at which inoculation for the small-pox was introduced, (just one hundred years ago,) and compare the spirit with which that proposal was received, with the encouragement which vaccination experienced from all classes of medical men, within six months after the announcement of the discovery, the comparison will redound very much to the credit of the present age. It will afford, we think, a pretty satisfactory proof, that while education has opened the minds, and narrowed the prejudices of the people at large, the followers of physic have profited by the same opportunities ; and have added to their learning and acquirements, the manly feeling which was prompt to acknowledge the merits of one of their own number, whose name was as yet un-

known,— the benevolence which could sacrifice without a murmur a large proportion of their most profitable practice,— and, harder task still, a candour, which could renounce at once the prejudices of early education.

The world had, unquestionably, a good right to expect, that in proportion to the forwardness of that zeal which led medical men to recommend vaccination at its first introduction, with such scanty means of judging of its just claims upon their confidence, would be the degree of scrupulous accuracy with which they watched the effects of the practice, when, instead of being confined to the milk-maids of a few happy dairy-farms in Gloucestershire, it was to exert its influence over every race of man, from the Greenlander to the Hot-tentot, and to spread over the whole face of the globe, as the waters cover the sea. To suppose that nothing further was to be learned concerning it, than could be afforded by a few observations made in any one town or country, while the practice was yet in its infancy, (even though that country were

England, and that town London,) appears to us, as it must to all, preposterous. We rejoice to say, that no such notion prevails generally. It is plain that medical men consider it a duty incumbent on them, to examine, rigidly and impartially, whether the grounds upon which vaccination stands are still secure, and to ascertain what new lights have been thrown upon the subject by the lapse of time, and the wonderful extension of the practice. We think we can perceive, indeed, in one or two places, a disposition to support, to their full extent, the views which were first entertained regarding the influence of vaccination ; but we may be mistaken in this, and we are sure, at least, that such is not the common feeling. On the contrary, it appears to us, that every attention is paid to the different phænomena of cow-pox, and to the anomalies which it occasionally exhibits, and every desire manifested to profit by the extended experience which the physicians of the present day enjoy. From all we have seen and read, we are satisfied that they will continue to deserve this very honorable mention, even though it should hereafter

become necessary to deviate, in some considerable degree, from the ideas concerning vaccination which were originally adopted.

It is with the intention of proving, in the most satisfactory manner, with what minuteness every point regarding vaccination is watched by the medical men of the present day, that the author has subjoined, in a note \*, the title-pages of some of the works

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\* Reports to the Secretary of State for the Home Department, from the National Vaccine Establishment for 1820, 1821, and 1822.

An Account of the Varioloid Epidemic, which has lately prevailed in Edinburgh, and other Parts of Scotland, with Observations on the Identity of Chicken-Pox with modified Small-Pox, &c. By JOHN THOMSON, M.D. F.R.S.E., Professor of Military Surgery in the University of Edinburgh. Longman and Co. 1820. pp. 322.

A Statement of Facts, tending to Establish an Estimate of the true Value, and present State of Vaccination. By Sir GILBERT BLANE, Bart. M.D. F.R.S. London. 1820. pp. 18.

A History of the Variolous Epidemic, which occurred in Norwich in the Year 1819, and destroyed 530

which have appeared upon the subject within the last few years. Innumerable are the papers of a shorter and less laboured

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Individuals ; with an Estimate of the Protection afforded by Vaccination, and a Review of past and present Opinions upon Chicken-Pox, and Modified Small-Pox.  
By JOHN CROSS. London. 1820. pp. 296.

Observations on the different Kinds of Small-Pox, and especially on that which sometimes follows Vaccination. By A. MONRO, M.D. Edinburgh. 1818.

Observations on the Varioloid Disease, or on Small-Pox, under the Form which it presents in Persons previously vaccinated, illustrated by Cases and Experiments; published with a View to a true Estimate of the Value of Vaccination. By WILLIAM STOKES, M.D. Dublin. 1821. pp. 68.

Address to the Public relative to some supposed Failures of the Cow-Pox at Repton and its Neighbourhood, with Observations on the Efficacy and general Expediency of Vaccination, and on the injurious consequences of Inoculation for the Small-Pox. By B. GRANGER. Burton-upon-Trent. 1821. pp. 34.

Observations on Variolous Inoculation, and Vaccination, with an Appendix, containing some Remarks on the Extension of Small-Pox in the Town of Melksham, and its Vicinity. By J. F. HULBERT. 1820.

character, which have been published in different periodical works during the same interval; and the whole have been amply commented upon in the reviews and journals appropriated to medical subjects. In the following pages, advantage will often be taken of the excellent remarks scattered through the volumes here quoted; more particularly the highly valuable works of Mr. Cross and Dr. Thomson.

Such are the feelings and views with which a “Candid Observer” enters on the consideration of the several questions suggested by the present state of vaccination in this country. He intreats the patient attention of the reader, and promises to be as short as is consistent with the extent and importance of the subject.

1. The first point on which he has thought it probable that the vaccinated

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Circular, addressed to Practitioners in General, regarding the Varieties and Modifications of the Vaccine Vesicle, occasioned by an Herpetic, and other Eruptive States of the Skin. By E. JENNER, M.D., &c. &c.  
1821.

might wish for some information, is, whether the faculty were prepared for these repeated failures of cow-pox, at the time they first recommended it; and whether they have been thereby induced to make any alteration in their views respecting vaccination. To this question there would probably be but one answer from the great majority of the medical profession. They would all be ready to confess, that they had not anticipated such frequent instances of the occurrence of small-pox subsequent to vaccination, and that it has become necessary to modify *some* of the views which were originally entertained regarding it. The avowal of the Board of the National Vaccine Establishment, (consisting of the President and censors of the Royal College of Physicians in London, and of the master and governors of the Royal College of Surgeons) on this subject, is in the highest degree candid and honorable. In their Report, dated April 12. 1821, after stating that they had received accounts from different parts of the country, of *numerous cases* of small-pox having occurred after vaccina-

tion, they express themselves in the following manner : —

“ These cases the Board has been industriously employed in investigating ; and though it appears that many of them rest only on hearsay evidence, and that others seem to have undergone the vaccine process imperfectly some years since, when it was less understood, and practised less skilfully than it ought to be, yet, after every reasonable deduction, we are compelled to allow that too many still remain, on undeniable proof, to leave any doubt that the pretensions of vaccination to the merit of a perfect and exclusive security, in all cases, against small-pox, were admitted, at first, rather too unreservedly.”

When vaccination was originally introduced, it was held out, that provided the process was regularly gone through, it afforded *positive* and *complete* security against the small-pox. It is true, indeed, that almost from the very first, some persons were found who maintained, that occasional exceptions had been met with, and

that hereafter others might be expected ; but this was not the general feeling in the profession. Even so late as April, 1807, when the College of Physicians gave in their official Report on vaccination, in obedience to His Majesty's commands, and when it is reasonable to suppose that every care was taken in the choice of expressions, we find this learned body saying, “ that the security derived from vaccination against the small-pox, if not absolutely perfect, is as nearly so as can perhaps be expected from any human discovery ; for amongst several hundred thousand cases, with the results of which the College have been made acquainted, the number of alleged failures has been surprisingly small, so much so, as to form certainly no reasonable objection to the general adoption of vaccination.”

Cautiously as this is expressed, we imagine they would qualify their conclusions even still more, if they were engaged in the same task at the present time. It is certainly curious to observe, that the College, at that period, so far from anticipating any increase of failures, actually looked forward to a reduction of them. This we find very

unequivocally stated in a subsequent page of the same report. "The practice of vaccination," they say, "is but of eight years standing, and its promoters, as well as opponents, must keep in mind, that a period so short is too limited to ascertain every point, or to bring the art to that perfection of which it may be capable. — There is little doubt that some of the failures are to be imputed to the inexperience of the early vaccinators, and it is not unreasonable to expect, that further observation will yet suggest many improvements that will *reduce the number of anomalous cases*, and furnish the means of determining, with greater precision, when the vaccine disease has been effectually received."

We have little hesitation in saying, that we think the cause of vaccination was in some respects injured by the very decided manner in which it was first brought forward as a *complete* security against the small-pox. It should have been borne in mind, that the analogy of other disorders would hardly have justified such strong expressions. It is well known to physicians.

that small-pox, whether natural, or inoculated, does not at all times secure the individual from a second attack of the complaint. Instances of small-pox occurring a second time have been collected by many persons, and are sufficiently numerous to have warranted the expectation of a similar occurrence with regard to cow-pox. Dr. Baillie has shewn, that measles occasionally occurs twice in the course of a life; and of late it has frequently happened, that the same individual has been twice attacked by scarlet fever. All these facts are well ascertained, and they should certainly have taught medical men more caution, when speaking of the chance of the vaccinated suffering by exposure in after-life to the contagion of small-pox.

Upon the whole, we reply to the first question, that though the faculty were, in a good measure, unprepared for those frequent instances of the occurrence of small-pox after vaccination, which have lately engaged their attention, yet that this was partly their own fault. For such an error, however, they may well be excused, considering that it originated in their abundant joy at the pros-

pect of exterminating the most dreadful disease which their duty called them to witness.

2. The second question which we have proposed for discussion is, whether the medical men of the present day, who have paid most attention to the subject, still continue to recommend vaccination with that same earnestness and firm conviction of its advantages, which contributed so essentially to its introduction into this country, twenty years ago? — There can be but one answer, we are persuaded, to this question; and that will be as favourable to vaccination as the warmest of its original supporters could wish. But as this is certainly the most important of all the questions which a consideration of the present state of vaccination suggests, it will be necessary that we enter a good deal into detail on this subject, and shew upon what *grounds* it is, that medical men continue to support vaccination, with their eyes fully open to the many cases of small-pox subsequent to it, which have occurred within the last five or six years. For this purpose it will be necessary, in the first place, to

call the attention of the reader to the important facts detailed in Mr. Cross's work, and then endeavour to make him understand the importance which is now attached to the "*modifying influence of vaccination.*"

For the sake of those who are uninitiated in the mysteries of medical learning, we must premise that small-pox, like many other disorders, typhus fever, for instance, or scarlet fever, or the plague, rages at certain times, and in certain places, much more violently than it does at other times, and in distant places. This has been supposed to be owing to some peculiar condition of the atmosphere then and there existing; but what that exact condition is, has never yet been discovered, and probably never will. When a disorder is thus prevalent, it is said to be *epidemic* at that particular place, or in that season. Such was the epidemic of London in 1781, and, not to multiply instances — of Norwich in 1819. It is certainly a most remarkable fact, that twenty years after the discovery of vaccination, in the country which gave it birth, in a town where no particular prejudices against it

have been detected, where the resident practitioners are, and always have been, zealous promoters of it,— small-pox should have prevailed to an extent almost unprecedented in the earliest annals of that fatal disorder. Three thousand individuals, or a thirteenth part of the whole population of Norwich, had small-pox in one year, (1819); of whom five hundred and thirty died! But to appreciate fully the alarm which this destructive epidemic must have caused, it should be added, that three hundred of this number died in two months, viz. June and July,— during which time the mortality in the town, from other diseases, was at least equal to the average of ordinary seasons.

The reader will be careful to observe, that this shocking havoc was among children, who had *never* been vaccinated. For many years previous to the visitation of this epidemic, vaccination had been sadly neglected in Norwich. The apathy of parents, indeed, was such, that even after the disorder had made its appearance in the town, and while it was proving fatal, at the

rate of thirty-six in a week, it required more than ordinary exertions on the part of the medical men, in conjunction with the magistracy and respectable inhabitants of the town, to induce them to have their children vaccinated. Mr. Cross tells us, that early in July, when the epidemic was at its height, a public meeting was convened by the mayor, to consider of the best means to put a stop to its progress. A committee was formed, which, in a short time, obtained a census of the whole city, and found the number still liable to small-pox to exceed one thousand seven hundred. The practitioners of the town were *unanimous* in recommending vaccination. In the course of a month, one-half of those, who, by the census, were found to require it, had received the protection of cow-pox ; but the parents of the other half were deaf alike to argument, entreaty, and bribe. Half-a-crown had been generously offered to parents for each child whom they brought to be vaccinated, but the prejudices of some were superior even to this powerful temptation. Above eight hundred, therefore, were still left to be the food of the disease,

of whom one hundred and forty, (the full proportion) perished ; nor did the disorder decline until the close of the year, when scarcely any individual could be found in the city, who could be affected by exposure to the contagion.

The practitioners of Norwich, we have said, were *unanimous* in their recommendations of vaccination ;--and why ? Because at the time this destructive epidemic was raging, *ten thousand* vaccinated persons were residing in the town, continually exposed to the contagion, often in the same house and room, and not unfrequently in the same *bed*, with those who were labouring under small-pox ; and, of this large number, comprising one-fourth of the whole population of the town, **ONLY TWO DIED !** Here is the genuine triumph of vaccination. True it is, that a considerable number of these ten thousand took small-pox. Some had it pretty severely, but then only two *died*. Like the famous ten thousand of old, they stood their ground while their great enemy hovered round them on every side. Cow-pox was never put to such a trial be-

fore, and it is right that the world should know how it has borne it. — As well, we may proudly say, as the most sanguine of its supporters could have anticipated, and far *better* than a cautious observer of nature could reasonably have indulged the hope of. The great object which the discoverer of vaccination had in view, was the preservation of human life; and that he has succeeded in this, to the fullest extent of his expectations, the result of the epidemic at Norwich, in 1819, has, we think, *completely* and *undeniably* established. We may henceforward reason as much as we like about small-pox after cow-pox, and its causes, and the proportion of cases in which it occurs, but let us never forget that vaccination is a great blessing as long as life is worth having. Let us keep steadily in mind, that while those who neglected or despised it were daily falling under the visitation of a dreadful epidemic, the vaccinated were living in what may be called comparative *security*. Let us recollect, too, at how easy a rate that security was purchased; — and then, if to a few the blessings of vaccination should prove but

partial, let us be thankful, that though small-pox cannot be prevented by it, its worst evils may be mitigated, and life, at least, by its influence spared.

This leads us to notice another of those grounds upon which medical men continue to support vaccination, though fully aware of the many instances in which small-pox has occurred subsequent to it. As we like to have strong authority on our side, we shall begin by quoting the opinions of the National Vaccine Board, as expressed in their Report, laid before the House of Commons, May 7. 1821.

“ Moreover, we have the most undoubted proofs, from experience, that where vaccination has been performed perfectly, small-pox occurring after is almost universally a safe disease ; and though ushered in by severe symptoms, has hardly ever failed to be cut short, before it had reached that period, at which it becomes dangerous to life. The *controlling power* of vaccination must be admitted as next in importance to its *preventive influence* ; and surely justifies

our high estimation of the value of this great discovery."

The *preventive* influence of vaccination is unquestionably very great. Thousands of vaccinated persons we have seen, were exposed, at Norwich, to the contagion of small-pox, not for a few hours or days, but for a whole twelvemonth, — not to a mild, but to a most malignant kind of the disease, and escaped it wholly. Every year's experience, however, seems more and more to shew, that the *controlling* or *modifying* influence of vaccination is of an importance not inferior to that which was once assigned to this discovery, as the *preventive* of small-pox.

It will be an object with us hereafter to prove, from a variety of considerations, how vain is any hope of utterly exterminating the small-pox from the earth. As we *are* to have the disorder, then, and as we *must* lay our account with its occurring occasionally in the same malignant form which it assumed at Norwich in 1819, it is well worth inquiring, how its violence may

be mitigated. In no way can this be so effectually done as by vaccination. Small-pox proves so uncommonly destructive to human life, first, by the great *quantity* of eruption on the skin which often attends it, and, secondly, by the high degree of *inflammation* which the skin undergoes in the progress of the complaint. Now the effect of previous vaccination, in cases where small-pox does unfortunately follow, is, in the first place, to diminish the *quantity* of eruption, and, in the second place, to *cut short* the inflammation altogether, or at least to hurry it on so quickly, that little or no inconvenience is felt from it. The uniform experience of those who have seen this kind of *secondary*, or *modified*; or *vaccine* small-pox, proves that it is a mild disease.

It would be useless to conceal, and impossible to deny, that a few fatal cases have occurred; but they are universally admitted to be very rare, and this rarity is a matter of the utmost consequence in estimating the degree to which they operate as a drawback upon the advantages of vaccination. We are to remember, too, that the *inefficiency*

of cow-pox is not in all cases to be immediately admitted as the cause of the patient's death ; but that something is perhaps to be laid to the score of inattention or mismanagement. A case may have been *neglected*, which, though dangerous in the first instance, timely care on the part of a medical man might have rendered comparatively mild. On the other hand, the injudicious practice of ignorant persons may have given malignity to that, which, if left to itself, might have run its course *safely*. Taking all these things into consideration, and weighing also the possibility, that in *some* of the cases of fatal small-pox after cow-pox, the process of vaccination had never taken effect at all, we shall have abundant reason to conclude, that the *modifying* influence of vaccination is very great, and deserving of being placed in the highest scale of its advantages. It was observed in Scotland \*, that while the frequent instances of small-pox after cow-pox tended to limit the confidence of practitioners in the preventive power

\* Edinburgh Medical and Surgical Journal, vol. xvi.  
p. 242.

of vaccination, it served to extend and confirm their knowledge of its modifying power. The same conviction, too, extended to the public at large, so that an epidemic which threatened at its commencement to injure most essentially the practice of vaccination, ended by promoting and establishing it.

It would hardly be going too far to say, that were the preventive power of cow-pox much less than we have every reason to believe it to be, nay, were it even thrown out of the question altogether, still vaccination would be a blessing inestimable. It would then come into competition with inoculation for the small-pox, and how would the comparison stand? — By inoculation for the small-pox, the child has a sore arm for ten days; at the end of which time he has a fever and eruption, often exceedingly severe, and commonly proving fatal in the proportion of 1 in 300. By vaccination, the child has a sore arm for ten days; and at the end of five, ten, or twenty years, (if he live as long) he has fever and eruption, sometimes severe, but far more commonly mild, and

very seldom indeed proving fatal. Were the cause of vaccination no better than is here, for the sake of argument, supposed, still we maintain, and with confidence, that the present generation would have greatly the advantage of their fathers and grandfathers. *They* were all compelled to undergo the ordeal of small-pox inoculation, in which some perished; others suffered severely in their health; and, to the sorrow of many a fine lady in old times, be it said, still more in their personal appearance. Pitting, that mortal foe to female beauty, was a very frequent consequence of small-pox inoculation. It is almost unknown as a result of the modified small-pox.

Viewing the subject, however, in a different light, and *acknowledging* the advantages which inoculation for the small-pox afforded, still the balance will be in favor of vaccination. There was something very like inhumanity in the *principle* of inoculation. The considerate were indeed preserved by it; but their security was gained by exposing to the most imminent danger, that large mass of people who are careless,

and prejudiced, and ignorant, and obstinate. The practice of vaccination, on the other hand, carries with it much of a refined and generous character. It takes a considerable degree of risk upon itself, but it adds nothing to the dangers of others. That the *natural* small-pox increased with the increase of inoculation has been abundantly proved, and while that practice continued, there were no means of reconciling the interests of the careful and the thoughtless. This, however, is effected in the most desirable manner by vaccination.

In whatever light, then, the subject is viewed, enough, we think, will appear to convince all impartial persons, that the faculty are fully justified in continuing to recommend vaccination, and with a confidence not inferior to that which they manifested at an earlier period, when their zeal was rather an earnest of their wishes, than the sound dictate of reason or experience.

Many of those who cast their eyes over these pages, may perhaps be satisfied with this plain statement of the case; but there

may be others, whom curiosity may induce to wish for further information on a subject which must be acknowledged very interesting, both in a scientific point of view, and as one which comes home to the feelings and interests of individuals. For their satisfaction, therefore, we shall go a little more deeply into the minutiae of this enquiry, and lay before them a short account of the principal topics which it embraces, and which at the present moment engage the attention of many of the most intelligent members of the medical profession.

1. One of the most obvious questions which would occur to any one to put, hearing of the frequent occurrence of small-pox after vaccination, is, To what is it commonly attributed? — Are the faculty agreed about the *causes* of small-pox after cow-pox? Those readers who are best acquainted with medical literature, will be the least surprized to hear that the “doctors disagree” on this point. But in saying this, we mean no disrespect to that learned body, for those who are best ac-

quainted with the intricacies of the animal economy, will most easily comprehend how difficult of solution the question is. Well may the world ask, Who shall decide when doctors disagree? They disagree, for the most part, when the point in dispute involves the consideration of some of the most delicate and obscure of the operations of nature. Various attempts then have been made to explain the occurrence of small-pox after cow-pox. However hopeless the attempt may appear to some, it will be very possible, we think, to make the reader understand them, and even the spirit and scope of the different arguments that have been used, for and against the several suppositions.

We must begin by entering our protest against any attempts at explaining away these cases by calling the second complaint bad chicken-pox. This has been done in too many instances by medical men, and the consequence has certainly been, upon the whole, injurious to vaccination. The world are ready enough to believe them cases of small-pox. Were they really chicken-pox, it would be difficult to per-

suade people of it; but when the world is right, when the complaint can in many instances be traced unequivocally to the contagion of small-pox, and when the characters of the disease are sufficiently distinct, any hesitation on the part of a medical man at avowing its true nature seems like a fear of trusting vaccination to its own merits. It looks as if the cause of vaccination could be supported only by concealment. Were this even the real state of the case, it is clear that such means would soon fail of their desired object. So widely is vaccination now spread, that the truth, sooner or later, must be known; and its career could hardly be maintained a week, by such inadequate, though well-meant exertions. The only occasion when such an excuse can be admitted, is, when the medical man sees the complaint for the first time, and finding it so different from the small-pox which he has been accustomed to see, really hesitates in acknowledging it to be such. It will not, however, justify a medical man in his scepticism under any other circumstances. It has been shewn, by most ample experience, that even the

mildest of these cases of modified, or vaccine small-pox will communicate common small-pox, by inoculation, to those who are unprotected. It has been rendered highly probable, also, we had almost said satisfactorily proved, that many of those cases which were once called chicken-pox, do really arise from the contagion of small-pox. To hesitate, therefore, about giving the name of small-pox to those eruptions which exhibit some of the characters of small-pox, merely because they succeed vaccination, is as much a proof of the want of reading, as it is of the little judgment of the practitioner.

But to return to the presumed causes of small-pox after vaccination : —

1. One of the earliest and simplest, but least scientific of them all, was the supposition of *spurious matter*. It was declared, on high authority, that there were two kinds of cow-pock matter; and that, to a person whose eye was accustomed to the appearances, no difficulty could be experienced in ascertaining whether the matter

contained in a pustule was true or spurious. Of course, the true cow-pock matter gave security, and the spurious none. This hypothesis, however, being soon after found to involve some difficulties, and even contradictions, it was given out by the College of Physicians, in their official Report for 1807, that by the term spurious cow-pox, "nothing more was meant than to express irregularity or difference from that common form and progress of the vaccine pustule, from which its efficacy is inferred." The notion of a spurious matter, therefore, merged from henceforward in the more general supposition of *imperfect vaccination*, which we next proceed to notice, and which will require more particular investigation, because it still holds its ground, and is even considered by many as fully adequate to the explanation of the facts.

2. Vaccination is said to be *imperfect*, when the arm does not put on *precisely* those appearances which occur under common circumstances, — as, for instance, when the pimple or vesicle runs through its stages too quickly, or too slowly, — when the

inflamed circle comes on before the eighth day, — when the inflammation of the surrounding skin becomes very violent, and ends in the formation of *matter*, leaving a *large* and *irregular* scar. When any *considerable* deviation from the ordinary course of the vaccine vesicles takes place, it has always been presumed, and probably with justice, that the process of vaccination cannot have produced those effects upon the constitution, which are necessary to secure it from the influence of small-pox contagion. But of late the supporters of this theory have gone much further. They have imagined, that very *trifling* deviations from the regular appearance of the arm, may exert this counteracting power, and detract from the security of vaccination. Dr. Jenner, one of the earliest and steadiest advocates of this doctrine, some time ago threw out the suggestion, that in proportion to the *degree of perfection* which the vaccine vesicle puts on in its progress, does the constitution lose its susceptibility of small-pox, and its capability of producing the disease in its perfect and ordinary state ; and that the small-pox taken subsequently

is modified accordingly." In his late circular letter to the members of the medical profession, he states, that further observation has confirmed this opinion.

The impediments to perfect vaccination are principally the following :

1. Spurious matter, that is to say, matter taken from the arm at an improper period of the process.
2. An insufficient number of vesicles.
3. Pre-occupation of the skin by some disease, in which a fluid is poured out, capable of conversion into a scab \* ; such as tetter, ring-worm, dandriffe, scald-head, or even a whitlow on the finger.
4. Robbing the vesicle incautiously of its contents, particularly where only one has been raised.
5. External violence done to the vesicle

\* This has lately been brought forward by Dr. Jenner as the *grand impediment* to perfect vaccination, and capable of explaining, satisfactorily, most of the facts which have been mentioned as bearing upon the great question before us. — See London Medical and Physical Journal for September, 1822.

(such as rubbing or scratching it) more especially during its early stages.

It is impossible, we think, to deny that the theory of imperfect vaccination is to a certain degree well founded, and important. Certain we are, that it shews considerable ingenuity. But we hesitate very much, before we can agree to ascribe to it that extensive influence which it has been supposed by many to enjoy. We had entertained the same doubts long before we heard of the reasons brought against it in a review of Dr. Thomson's work on the Varioloid Epidemic of Scotland.\* But that decided us; and, altogether, we think the arguments there so well put, that we are tempted to give a short abstract of them, for the advantage of the general reader.

It is urged by the reviewer, in the first place, that during the time small-pox was raging epidemically in Scotland, it was not

\* Edinburgh Medical and Surgical Journal, vol. xvi. p. 235.

observed that those who were vaccinated in a particular way, resisted the contagion better than others. Of forty persons who took the modified small-pox at Forfar, it was remembered distinctly, that there were twelve, from whose vesicles no lymph was abstracted, nor did the parts receive any injury from the clothes. At Dundee, several of the most distinctly marked cases of small-pox occurred in those, who had been vaccinated apparently in the most satisfactory manner, and where the cellulated marks on *both* arms were still as perfect as possible. But while, on the one hand, vaccination, which would have been called perfect, is shewn, by these cases, to give imperfect security, there occurred in Scotland, on the other hand, a great many cases in which vaccination, which, according to all rule, was imperfect, yet afforded perfect security. Dr. Thomson expressly remarks, (page 314.) that he knows many instances in which *single vesicles which had been abraded*, appeared to preserve from infection, individuals fully exposed to the contagion of small-pox, or subjected to the test by inoculation.

The reviewer further states, as the result of his own observation, that he had seldom seen a case of *modified* small-pox, without having occasion to notice that several persons under *precisely* the same circumstances, that is to say, vaccinated by the same practitioner, and generally in the same manner, having similar marks on the arms, and equally exposed to the contagion, escaped entirely. It is argued, lastly, that many children had been known to take modified small-pox, who had been put to a test calculated to prove incontestably that a perfect constitutional affection had resulted from the original vaccination. The arguments are summed up in the following words : —

“ We trust we have said enough to shew, that the Scottish practitioners have not lightly and hastily set aside the supposition of imperfect vaccination having been the cause of the frequent affection of vaccinated persons during the late epidemic ; but that they have found it, on due and deliberate examination, neither so well founded on general reasoning, nor so far justified by

experience, as to afford a satisfactory explanation of the phænomena."

We lay the more stress on these remarks, because, as far as we can judge, without being in the secret, they appear to have carried much weight with them in a very respectable quarter. They were written by way of comment on the "Report" from the "NATIONAL VACCINE ESTABLISHMENT" for 1819, in which the theory of imperfect vaccination was brought forward with great confidence, and in which it was stated, as well worthy of notice, that in all the cases of mitigated small-pox after vaccination, in London, which had been examined by the Board, the process had not been conducted according to that superior method which they had recommended, and which experience had proved to be effectual. The Report for the following year proved that, in the interval, the Board had found reason to alter their views regarding the causes of modified small-pox. Something was now attributed to peculiarity of constitution; and imperfect vaccination was only noticed as "*one source* of the evil which has pre-

vailed in different parts of the kingdom." The same view of the question is taken in the Report for the year 1821. Speaking of the mischiefs occasioned in the country by itinerant inoculators for the small-pox, the Board observe, that "a perpetual source of contagion is thus supplied and kept up, to the constant danger of all such as have not been vaccinated, or who may have undergone an imperfect process, or whom *peculiarity of constitution makes still susceptible of the variolous disease.*"

3. We proceed then to notice, lastly, the theory which ascribes the occurrence of small-pox after cow-pox to *peculiarity of constitution*, similar to that which renders some persons capable of taking small-pox twice. We think we may leave out of view, altogether, the notion entertained by a few, that the vaccine virus has degenerated in its quality, and that we shall not get free of small-pox after cow-pox, till we recur more frequently to matter taken directly from the cow. This opinion has never found many supporters. It is in strong contrast with an observation made

many years ago by Mr. Bryce (an eminent surgeon in Edinburgh), that the occurrence of eruptive complaints, after cow-pox, can never be satisfactorily explained on the principles originally brought forward, and sanctioned by persons of high authority ; and that, to come at proper conclusions concerning it, requires attention to the *general laws which regulate the influence of small-pox contagion upon the human constitution.* We are now getting very deep, however, into the arcana of medical science, and treading, at each step, on very treacherous ground ; but the reader need not be alarmed. Without entering the arena, we shall be quite content with looking on, and pointing out the *disposition of the forces.*

1. There are strong grounds for believing, that this peculiarity of constitution, which disposes to attacks of modified, or vaccine small-pox, is *hereditary.* Various instances have been observed of this complaint occurring in individuals of the same family, who were vaccinated at different ages, in different countries, and by different persons. Examples of this kind have occur-

red within the author's own observation, but many more will be found recorded or alluded to in the works mentioned in page 12.

2. The disposition to take small-pox after cow-pox is probably affected by the *peculiar constitution of the epidemic*. Some epidemics are more virulent than others, and there is reason to think, that when, from some unknown cause, there is any peculiar malignancy in the epidemic, small-pox after cow-pox will be more frequent, and perhaps even more severe.

3. It has been conjectured by some, and not without appearance of reason, that there are changes which take place in the constitution during the progress of life, which render a person more liable to take small-pox at a considerable distance of time after vaccination, than *soon* after it ; in other words, that the longer a man lives, the more liable he is to take small-pox. No one in the whole series of disputed questions, to which this subject has given rise, has been debated so keenly, or at such

length, or by so many able pens as this. It were in vain to attempt any thing like an abstract of the arguments on each side of the question. In their Report for 1820, the Vaccine Board state, that it appears to them fully established “that the disposition in the vaccinated to be affected by the contagion of small-pox does *not* depend on the time that has elapsed after vaccination; since some persons have been so affected, who had recently been vaccinated, whilst others, who had been vaccinated eighteen and twenty years, have been inoculated, and fairly exposed to the same contagion, with impunity.” On the other hand, the fact universally admitted, that small-pox after vaccination is more frequent now than it was ten years ago, hardly admits of any other explanation. There is no reason to believe that vaccination has extended to any considerable degree during that period, (though we see no grounds for supposing it has fallen off,) and therefore we are inclined to think that in the course of years the influence of vaccination *may* lessen; but we are far from intending to express any decided opinion on this point, and still far-

ther from wishing to determine how *far* this principle extends. It may be true, for aught we know to the contrary, only in a very small proportion of cases. It may be true as far as regards the *frequency* of the occurrence, but not the severity of the disease. We merely throw out these suggestions, in order to shew how closely it is necessary to examine these several points, before any correct conclusions can be obtained, and how much still remains open for future investigation.

4. It is by no means improbable, though as yet the subject has been but little enquired into, that the susceptibility of the body to small-pox after vaccination is favoured by certain ill-defined changes in the constitution, resulting from change of climate, change of air, or changes in diet and regimen. We mean by this to say, that there are grounds for believing, that a person vaccinated in the country is more liable to take small-pox when he comes up to town, than if he had staid in the country; and this *independent* of the greater

chance of exposure to contagion in a large metropolis.\* But these are secrets almost “beyond our depth;” and as there are still before us a considerable number of points equally deserving of notice, and perhaps more generally intelligible, it will be better to leave these unsubstantial regions of theory, with the view of determining, if possible, “what is the actual proportion of those, who are effectually secured by vaccination, to those who undergo the small-pox in after-life; and what probability there is of this increasing.”

Mr. Cross, one of the ablest writers on the subject, has given us, (in his account of the epidemic at Norwich,) some data by which we may arrive at an approximation to the truth. He acknowledges, indeed, with great modesty, that his experience is not sufficiently extensive to enable him to form a calculation which can be much re-

\* This, too, is the only explanation we have to offer of a fact long observed with regard to small-pox succeeding vaccination, viz. — that it has attacked persons who had previously exposed themselves fully to the contagion, and resisted it.

lied on; but he makes a good beginning, and observes very justly, that "no documents can, at the present day, possess much value, except they help to ascertain the *proportion* in which the vaccinated are likely to be affected by small-pox contagion." The mere collecting separate instances of failure or protection can answer no useful purpose. It can show only, adds Mr. Cross, "what has long since been acknowledged, the possibility of the one or the other, without establishing which is the general rule, and which the exception." After stating the grounds upon which he builds his calculations, he concludes that "not more than one in twenty will be *in any way* affected by the most intimate exposure to small-pox, and less than one in *fifty* will have the disease in a form answering to the generally received descriptions of modified small-pox. Calculations of a similar kind have been made by several other persons; but we have preferred giving Mr. Cross's, because it is the last, and, as far as we can judge, the best which has yet appeared.

There is considerable difficulty in getting at the truth in a matter of this kind. If we were to credit the loose sort of statements which are frequently made in reference to this question, we should be led into great errors. Thus, in a late Report of the practice of vaccination, at the Small-pox Hospital in London, it is stated, that "of 46,662 persons vaccinated at that establishment between 1799 and 1820, one only has been since affected with varioloid eruption," and we are informed, "that under the immediate inspection of the National Vaccine Establishment, more than 60,000 persons have been vaccinated in London and its vicinity, of whom five only are reported to have been subsequently affected with small-pox, though orders are given at every station to report all cases that are even suspected." A little reflection will convince us, that these statements cannot assist in the least in settling the point in question. The hundred thousand persons on these two lists must now be scattered over the whole face of the globe ; and what possible chance is there, if one-tenth, or

one-hundredth part of them took small-pox, that the news of it should ever reach the ears of the members of either establishment? Yet the determination of this point is really of great consequence, and we therefore think the public indebted to Mr. Cross, for having attempted it in a strictly scientific manner. A comparison of many such calculations will, of course, be necessary, before the question can be decided.

With regard to the probability of increase in the proportion of those who take small-pox to those who are effectually secured, we shall say but little, not being desirous of hazarding loose and unavailing conjectures concerning it. The only reason why it has been proposed as a subject of enquiry is, that we might have an opportunity of giving an opinion on a collateral point which it involves;—namely, the possibility of *completely exterminating* the small-pox from this country, and from the face of the earth generally.

This was one of the objects held out by Dr. Jenner, when the discovery of vaccin-

ation was first made, and certainly the facts then ascertained regarding it, gave countenance to the splendid hope. Every succeeding year, however, appears to us to have lessened the probability of so desirable an event ; and we candidly confess that, for many years past, we have altogether despaired of it. The flattering idea is still entertained by many. The Vaccine Board, in their Report for 1820, express their belief that “ the extinction of small-pox is entirely within our own power ;” and in another place, “ do not hesitate to assert that their conviction in favour of the experiment of universal vaccination is unshaken.” Sir Gilbert Blane tells us “ that it is now matter of irrefragable historical evidence, that vaccination possesses powers adequate to the great end proposed by its meritorious discoverer, namely, the total extirpation of the small-pox.” Dr. Jenner continues of the same opinion, as we gather from a letter by him, lately published in the newspapers, wherein he states, “ that this island might have been entirely freed from small-pox many years ago, if its wis-

dom, in this respect, had kept pace with many of the continental kingdoms, where small-pox has been entirely unknown for many years." It is a matter, we think, of some consequence, to come to a right understanding on this point. If all hope of exterminating the disease is, as we fear, visionary, it is better, we should say, not to hold out any such expectation, as it will certainly mislead the world, and, perhaps, tend ultimately to the prejudice of vaccination.

It is needless, we think, to take into consideration, what *might* happen, if, as Sir Gilbert Blane says, "all mankind were sufficiently wise and decided to vaccinate the whole of the human species, who have not gone through the small-pox ;" but the point to be settled is, what is likely to happen, taking the world as we find it, with all its imperfections. We argue, that the well-established fact, that the vaccinated do, under certain circumstances, take small-pox, will be at all times sufficient to prevent a certain number of persons from

putting confidence in that process.\* But we maintain farther, that if the chance of small-pox succeeding vaccination was much less than what we have reason to believe it to be, still the hope of exterminating small-pox would be vain. Parents vaccinate their children, on account of the threatened dangers of small-pox ; but as small-pox declines, and its terrors become less and less known, *they* will become more and more careless, till at length vaccination would fall into such neglect, that when, by some accident, a case of severe small-pox should make its appearance, (and no foresight could prevent this in a large town,) it would find a multitude of persons on whom to fasten, and the disease would be again revived in all its horrors.

Vaccination, then, can be maintained only by having small-pox continually before our eyes. This we take to be the reason

\* This is acknowledged by the Vaccine Board, who admit, in their Report for the last year, "that the prejudices of the people against vaccination are assignable (and not altogether unreasonably perhaps) to this cause."

why small-pox, (or what medical writers seem now to prefer calling the varioloid disease) has prevailed of late so much more extensively in the country than in London. The Vaccine Board were struck with this, and alluded to it in their Report for 1820. The neglect of vaccination, so conspicuous among the lower classes at Norwich in 1819, was doubtless attributable, in a great measure, to their comparative exemption from small-pox. In London, the contagion of small-pox is continually present, and the consequence is, that vaccination has *never* declined with us. It is indeed a very pleasing reflection, that, in London, the confidence of the lower orders in the efficacy of vaccination does not appear to have been sensibly lessened by the cases of small-pox after cow-pox which have occurred, and which most persons are acquainted with.

On the whole, we are inclined to think, that we are not likely to see, in London, an epidemic of so fatal a kind as that which raged three years ago at Norwich ; but while we say this, we feel equally persuaded that

the prospect of exterminating the small-pox altogether is hopeless.

Much has been argued of late, in reference to this question, from the circumstance of the comparative exemption from small-pox enjoyed, or said to be enjoyed, by foreign countries. Both Sir Gilbert Blane and Dr. Jenner lay considerable stress on this, but we have our suspicions that they are hardly borne out by the facts of the case. Epidemics, very similar to that which lately prevailed in Scotland, and which forms the subject of Dr. Thomson's work, have occurred in America,—in the South of France,—in Switzerland, and in other parts of the continent of Europe, within the last few years. A most destructive small-pox raged in 1818, in the Maison des Enfans Malades, in Paris. There are abundance of continental authors on the subject of modified small-pox; and altogether we are bound to believe, that our neighbours are not much better off than ourselves. What little difference between us there may be, is probably attributable to the greater exertions which are

made abroad for the punctual performance of vaccination.

Enquiries are often made of medical men, whether there exist any means of increasing the security which one vaccination affords ; and as the object of these pages is, to give as complete a view as possible of the whole case, we shall endeavour to learn what are the usual replies of the doctors to this very natural question. *Re-vaccination* has been frequently suggested ; and we lately heard this measure recommended, as one which promised much advantage. Dr. Jenner, however, is quite of another opinion. In his reply to a lady who had addressed a letter to him on that subject, he says, " What you have heard respecting my opinion of re-vaccinating in seven years, has no foundation in truth. Perfect vaccination is permanent in its influence." We have already expressed our suspicion, that the latter clause of this sentence may have been put rather too strongly ; but we still agree with Dr. Jenner, in believing, that no benefit is likely to arise from re-vaccination, where the first process was re-

gularly conducted. It is not often that re-vaccination will take effect, and where it does, we cannot persuade ourselves that it would do much good. That peculiarity of constitution which would lead to an attack of small-pox after one vaccination, would hardly be resisted by two ; and we think so, for the very same reason that we imagine, (in common with an ingenious writer on this question,) that a constitution which could be protected effectually by two vesicles, would, in all probability, have been equally secure with one.

Another means of increasing the security of vaccination, is subsequent inoculation with the matter of small-pox, while the influence of cow-pox is still fresh in the system. We cannot say that we like this. Of the two, we should prefer a second vaccination. But we own we cannot see what is likely to be gained by this operation of *testing*, as it is called, with small-pox matter. If the constitution of the individual be such as to render him liable to take a modified small-pox on exposure to the contagion, he may just as well run his

chance of taking it in after-life, or of escaping it, as make sure of it while he is young. There is no reason whatever for believing that the *inoculated* small-pox, after vaccination, is at all milder than the *casual* small-pox so occurring. A case in point may be found in Dr. Stokes's pamphlet, page 44. Two boys, who had been vaccinated in India, were afterwards tested in Ireland, by inoculation with small-pox matter. The elder boy, of good constitution, resisted, though there was considerable local inflammation. The younger, who was of a delicate habit, took the disease, but it ran a course *precisely similar* to that of the common modified small-pox.

The only way then, that can be relied on, of increasing the security of vaccination, is the adoption of means whereby the diffusion of *small-pox* contagion may be lessened. We are to look upon small-pox as they do in Edinburgh upon typhus fever, and in all European countries upon the plague. We are to lessen the chance of exposure to contagion, by the encouragement of hospitals expressly appropriated

to small-pox, by requiring all those who labour under the disease to be strictly excluded from intercourse with the world, and by enforcing the existing laws relative to small-pox inoculation. We are now, however, arrived at a point of great importance in this investigation, — one which has lately begun to excite some attention, and which will, in all probability, excite a great deal more, before the minds of men can be made up about it ; — we mean, the propriety of further legislative enactments with reference to the inoculation of small-pox. Mr. Cross has some valuable reflections on this point ; but, upon the whole, after weighing them attentively, the impression will remain on the mind, that nothing can, or ought to be done in the matter at present. The question is still involved in too much obscurity to enable us to say, what measures might now be recommended, with any thing like a fair prospect of permanent advantage : nor does it even appear to us, that any urgent call exists for interference. It is true, that in the country, circumstances may be different ; and we really believe, from what Mr.

Cross says, that in some districts, very serious inconvenience has resulted from the impossibility of giving effect to the laws now in existence. Still, we think that even more harm than this might be done, by enactments which were not founded upon the most thorough understanding of the subject.

It appears, then, that a certain proportion of those who are vaccinated will take small-pox afterwards; and all have, therefore, an interest in knowing what sort of complaint it is, that thus succeeds to the cow-pox;—whether it ever proves fatal, and in what proportion is the mortality to that of the natural, or inoculated small-pox. To these questions we can give the most satisfactory answers, partly from our own observations, but chiefly from the concurrent testimony of every one of the authors whose works we have quoted.

Small-pox, as it occurs subsequent to vaccination, is commonly a very mild disease. The worst of it is over before the eruption makes its appearance; and there-

fore, in most cases, before the patient is *aware* that he is labouring under small-pox. It seldom confines the patient to bed more than four or five days at the utmost, and is often a greater source of uneasiness to the friends, than to himself. It is followed by no pitting or scars, or any injury to the general health. Occasionally, indeed, it must be allowed, severer cases have occurred, but they are so rare, as hardly to become objects of calculation. The fatal cases which have been recorded are very few, and bear no comparison with the mortality occasioned even by the *inoculated* small-pox. The *vaccine* small-pox, as it may very well be called, is altogether much milder than the inoculated small-pox. It is not many months since we saw a mother, who had imbibed a prejudice against vaccination, from observing a case of this description, submit her child to inoculation for the small-pox. The child took the disease, and passed through it in the common manner; but the comparison was so infinitely in favour of the former, that her next baby was vaccinated, and she is now a steady supporter of the cow-pox. Simi-

lar examples may be found scattered through the pages of different writers, and very remarkably at pages 43 and 253, of Dr. Thomson's work.

"It is impossible," says this author, "to see the general mildness of the varioloid epidemic in those who had undergone the process of vaccination, and the severity, malignity, and fatality of the same disease in the unvaccinated, and not to be convinced of the great and salutary powers of cow-pox in modifying small-pox in those who were afterwards affected with this disease. It has been very agreeable, also, to observe, that the terrors first excited by the occurrence of this varioloid epidemic, in the families of those who had undergone cow-pock inoculation, have gradually given way in the progress of the disease; and that the comparison of small-pox, in its modified and unmodified forms, has often forced a conviction of the advantages of cow-pock inoculation upon the minds even of the most ignorant and prejudiced, and induced them to seek protection for themselves and their offspring in a practice

which they had formerly neglected, or despised."

It cannot be necessary to add any thing by way of general summary to the remarks here offered on the present state of vaccination in this country. Their tendency cannot be misunderstood. The author trusts that nothing which has been said can have the effect of checking, even in the most limited degree, the beneficial practice of vaccination:—he ventures, on the contrary, to hope, that the impartial estimate which it has been his object to make of the protection which it is calculated to afford, may contribute something to its extension and stability; perfectly sincere in his belief, that it is the only security against small-pox upon which the public ought to rely, and satisfied that it is one upon which they may rely with undiminished confidence.

THE END.



LONDON :  
Printed by A. & R. Spottiswoode,  
New Street-Square.





*Manufactured by*  
**GAYLORD BROS. Inc.**  
Syracuse, N. Y.  
Stockton, Calif.

Accession no. 2630

Author

Connelly, John;  
An address to  
parents...1822

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